A Program Guide for Climate Leaders

Setting the Standard for
Greenhouse Gas Management

CLIMATE LEADERS®
U.S. Environmental Protection Agency

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A growing number of companies are stepping up to the challenge of protecting the global climate.

Are you next?

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Overview

EPA's Climate Leaders is an industry-government partnership that works with companies to develop long-term comprehensive climate change strategies. Partners set a corporate-wide greenhouse gas (GHG) reduction goal and inventory their emissions to measure progress. By reporting inventory data to EPA, Partners create a lasting record of their accomplishments. Partners also identify themselves as corporate environmental leaders and strategically position themselves as climate policy continues to unfold.

By becoming a Climate Leader, your company can:

- Be identified as an environmental leader
- Increase energy efficiency and reduce energy costs
- Create a lasting record of accomplishments
- Receive technical assistance to complete a GHG inventory
- Improve management of GHG emissions and their associated risks
- Become a well-informed player in the climate change policy discussion

"While some assume that cutting carbon dioxide (CO_2) emissions cost businesses money, we have found just the opposite. Addressing climate change makes business sense. We have saved more than $100 million since 1998 by conserving energy."

—Wayne Balta
Vice President
Corporate Environmental Affairs and Product Safety
IBM

Goal Achievement and Cost Savings: IBM Corporation

IBM has focused its reduction efforts on energy efficiency, renewable energy procurement, and the redesign of PFC-using processes. Energy efficiency projects range from simple activities such as the installation of motion detectors for lighting control to complex controls projects, which monitor and adjust the building environment to minimize energy usage. IBM has increased its commitment to renewable energy sources, utilizing wind, solar, and biomass energy suppliers, supplying 4 percent of IBM electricity use globally in 2004. IBM engineers took a leadership role in redesigning PFC-using processes to either replace PFCs with nitrogen trifluoride (NF_3), which has a low GHG potential and is 90 to 95 percent utilized in the process, or to convert processes to a low-flow PFC process, reducing PFC emissions by 40 to 50 percent.

Program Basics

The Climate Leaders public service announcements (PSA) highlight Partners that have set GHG reduction goals. This PSA will appear in magazines throughout 2007.

Partners commit to:

- Develop a corporate-wide GHG inventory including all emission sources of the six major gases (CO_2, CH_4, N_2O, HFCs, PFCs, SF_6) using the Climate Leaders GHG Inventory Protocol
- Set an aggressive corporate-wide GHG emissions reduction goal to be achieved over the next 5 to 10 years
- Develop a corporate GHG inventory management plan
- Report annual inventory data and document progress towards their reduction goal
- Publicize their participation, reduction goal, and accomplishments achieved through the program

In return, EPA provides:

Recognition

- National press events
- Public service announcements in major business and consumer publications
- Speaking engagements at industry conferences
- Articles in trade publications
- Case studies highlighting Partner achievements
- Full page corporate profile on the Climate Leaders Web site

Credibility

- A credible, transparent GHG reporting mechanism
- Assurance that Partners have created a high-quality GHG management process

Technical Assistance for Partners

Technical Assistance to Complete Base Year Reporting

EPA provides up to 80 hours of technical assistance to each Partner as they develop and document their Inventory Management Plan (IMP) and complete their base year inventory. Technical assistance is available for all aspects of creating a credible GHG inventory, including choosing and implementing GHG accounting methods and measuring, tracking, and reporting GHG emissions. EPA also provides an inventory review process to offer constructive feedback on the accuracy and relevance of Partners' GHG inventory management systems.

After completion of a Partner's base year inventory, EPA experts can provide up to 10 hours annually of technical assistance in subsequent years. Assistance may be needed to help Partners update their IMP, adjust their base year inventory for significant changes, and calculate new emission sources.

Types of technical assistance include:

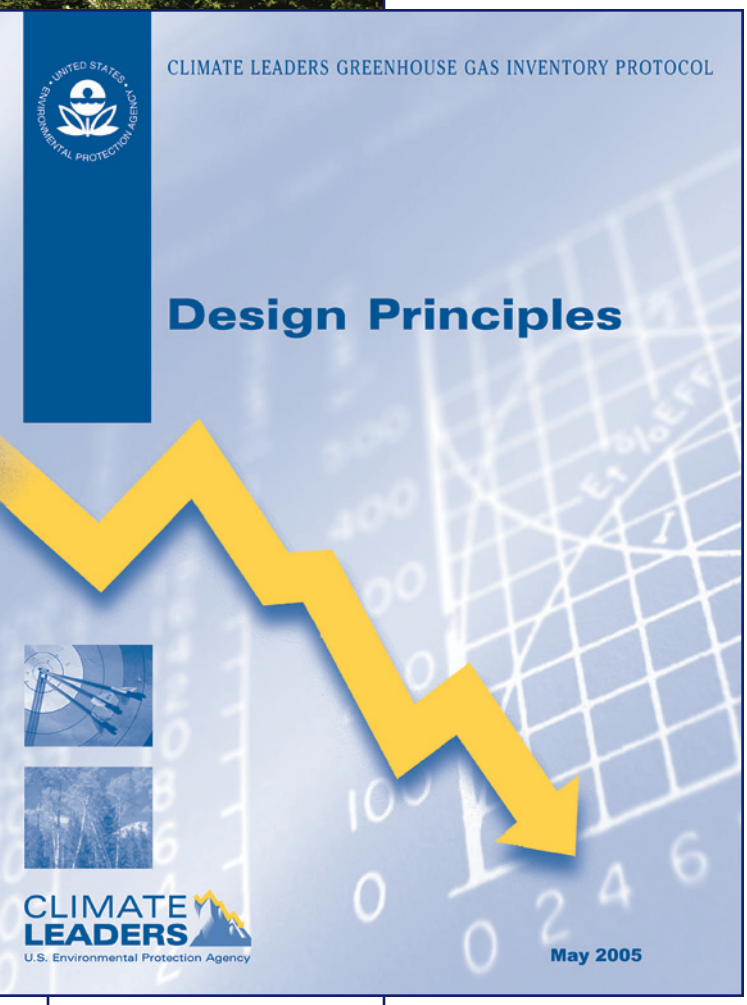
- Help understanding the Climate Leaders GHG Inventory Protocol
- Guidance selecting organizational and operational boundaries
- Help identifying sector-specific emissions sources
- Assistance calculating emissions by identifying methods, types of data needed, emission factors, and estimating small sources
- Support and feedback creating an IMP
- One onsite visit to review implementation of the IMP
- On-call support for technical queries

"We believe that climate change requires immediate action. Our efforts to address this issue have typically led to improved efficiencies and other business benefits. Working together with Climate Leaders, I believe we can show that climate change is not only a serious problem but a real business opportunity."

—Arthur J. Gibson
Vice President
Environment,
Health and Safety
Baxter International Inc.

Goal Achievement and Energy Conservation: Baxter International Inc.

Energy conservation and management has been at the forefront of Baxter International's GHG reduction efforts, along with facilities consolidations. For example, the company is moving away from more energy-intensive sterilization methods that use ethylene oxide sterilization to methods that use e-beam sterilization. The company has also built energy-efficient new plasma collection centers. In addition, Baxter has focused on reducing the space required for its clean rooms, in turn decreasing the requirements for heating, ventilation, and air conditioning (HVAC) systems, which can represent 60 to 70 percent of a manufacturing facility's energy use.



Climate Leaders GHG Inventory Protocol

The Climate Leaders GHG Inventory Protocol defines how Partners inventory and report their GHG emissions. The Protocol is based on an existing corporate GHG inventory protocol developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).[1] Through a collaborative process involving representatives from industry, government, and nongovernmental organizations, WRI and WBCSD have been working to develop generally accepted accounting practices for measuring and reporting corporate GHG emissions. The WRI/WBCSD work has been modified by EPA to fit the specific needs of Climate Leaders.

The Climate Leaders Protocol consists of three major parts:

- Design Principles
- Core Modules Guidance
- Optional Modules Guidance

Design Principles

The Design Principles of the Inventory Guidance include overall guidance on defining inventory boundaries, identifying GHG emission sources, and defining and adjusting a base year. The Design Principles also define the minimum level of data reported under Climate Leaders and various optional emission and reduction sources that a Partner may elect to report.

[1] For more information on the World Resources Institute/World Business Council for Sustainable Development GHG Protocol, visit <www.ghgprotocol.org>.

Core Modules: Required GHG Emissions Reporting

Direct Emissions

- Onsite fuel use (stationary and mobile sources)
- GHG process-related emissions
- Refrigeration and air conditioning

Indirect Emissions

- Electricity and steam purchases

Optional Modules: A Customized Approach

Every corporation has a unique mix of GHG emissions and reduction activities. Each corporation, therefore, takes a slightly different approach to mitigating its climate footprint. Climate Leaders offers companies flexibility in meeting their reduction goal by allowing Partners to broaden their management scope to include any of the following optional activities:

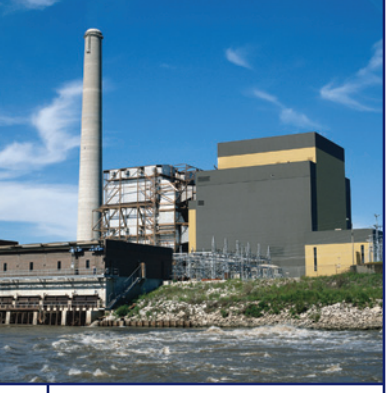
- Offset investments (e.g., sequestration, landfill methane)
- Renewable energy
- Offsite waste disposal
- Product transport
- Employee commuting
- Business travel
- International operations

Goal Achievement and Return on Investment: SC Johnson

At its Waxdale facility, SC Johnson chose to install a landfill gas combustion turbine system, which was calculated to reduce GHG emissions by 32,000 tons a year—50 percent of the facility's emissions—and thus deliver virtually all of the company's Climate Leaders commitment. The $5 million, 3.2-megawatt system cut electricity roughly in half and natural gas consumption by approximately 25 percent, and is estimated to save more than $2.6 million dollars a year in energy costs. SC Johnson projects that the overall return on investment from the system will be nearly 20 percent. The success of this project has prompted SC Johnson to install a second turbine, fueled by natural gas and waste methane, at the same facility. Together, the two-turbine system will reduce the facility's GHG emissions by 52,000 tons per year.

"Climate Leaders is a win-win partnership where EPA and concerned, knowledgeable companies work together to design GHG reduction efforts that will benefit the environment and sustain the economy. This is the kind of solution SC Johnson wants to be a part of."

—Scott Johnson
Director, Environmental & Safety Actions
SC Johnson



Climate Leaders Reporting Requirements

Third-Party Verification

Some Climate Leaders Partners have completed or are considering third-party verification of their inventories. As an alternative to the primary reporting option, EPA allows Partners that under-take a rigorous third-party verification of their GHG inventories to submit a verification report certifying that, at a minimum, the requirements of the Climate Leaders GHG inventory review have been met. Partners interested in third-party verification are

The Climate Leaders reporting requirements are designed to provide credibility and promote continuous improvement in corporate emissions accounting procedures. All Climate Leaders Partners can receive free technical assistance from EPA's team of experts to complete the program's reporting requirements.

Components of Reporting Requirements

Climate Leaders reporting requirements consist of three major components: an Inventory Management Plan, the Annual GHG Inventory Summary and Goal Tracking Form, and the review process.

Inventory Management Plan

Partners develop and maintain an IMP that describes their process for completing a high-quality, corporate entity-wide inventory. Companies use an IMP to institutionalize a process for collecting, calculating, and maintaining GHG data. EPA provides an IMP checklist at www.epa.gov/climateleaders/docs/IMPchecklist.doc that includes the important elements of an IMP. Partners may have a single IMP document that addresses all of the elements that go into developing their corporate inventory, or they might have an equivalent collection of procedures and other relevant information. EPA expects the critical elements of an IMP to be developed within one year of a Partner joining the program, while other elements can be phased in over time.

The seven major sections of an IMP are:

- *Partner Information*: Company name, address, and inventory contact information
- *Boundary Conditions*: Organizational and opera-tional boundary descriptions
- *Emissions Quantification*: Quantification methodolo-gies and emissions factors

GHG Inventory Management Plan Checklist

The Inventory Management Plan (IMP) is an internal process for the Partner to institutionalize the completion o IMP should be designed with this in mind, not strictly as a reporting requirement to EPA. The IMP checklist ou be included in an IMP and can be used as a guide for creating an IMP or pulling together existing documents. T and should not be used as a substitute for an IMP. As part of the Climate Leaders reporting requirements, Partn of their choice, their company-specific approach for each IMP component listed below. EPA expects that an IM Partner joining the program. However, EPA recognizes that the development of an IMP is an ongoing process, completed over time" can be implemented over the length of the Partner's goal period.

	IMP Component	Detail Required	Issues to Consider
	Partner Information		
1.	Company Name	Legal name of entity	
2.	Corporate Address	Physical and mailing address	
3.	Inventory Contact	Contact name and title	
4.	Inventory Contact Information	Contact information (telephone/fax/email)	
	Boundary Conditions		
	Organizational		
5.	Inclusion of Partially Owned or Controlled Assets	The basis for reporting emissions data from partially owned or controlled assets: • Equity Approach • Control Approach: – Financial control criterion – Operational control criterion	Is the approach consistent with the Clima is operational control defined? How is ec or value derived from company)? Are leases adequately addressed?
6.	Facilities List	A list of all facilities with location, % ownership, or % control.	Is the list complete and does it include all

- *Data Management*: Data sources, collection process, and quality assurance
- *Base Year*: Base year adjustments for structural and methodology changes
- *Management Tools*: Roles and responsibilities, training, and file maintenance
- *Auditing & Verification*: Auditing, management review, and corrective action

Annual GHG Inventory Summary and Goal Tracking Form

Partners complete and submit the Annual GHG Inventory Summary and Goal Tracking Form to EPA annually. This form describes emissions in terms of total CO_2-equivalent at a corporate level, broken out by emission source type—core direct (e.g., stationary combustion, process, mobile sources), core indirect (e.g., electricity or steam purchases), optional (e.g., employee commuting, product transport), renewables, and offsets (e.g., sequestration)—for both domestic and international sources. The form also includes historical totals and a performance indicator (if applicable) that is used to track progress toward a reduction goal. The summary and tracking form is available at www.epa.gov/climateleaders/docs/summaryform.xls.

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ANNUAL GHG INVENTORY SU

Required: Optional:

Partner Name:	
Reporting Year:	

Inventory Contact Person:			
Department/Division:			
Street Address:			
City:		State:	
Telephone Number:			
E-mail Address:			

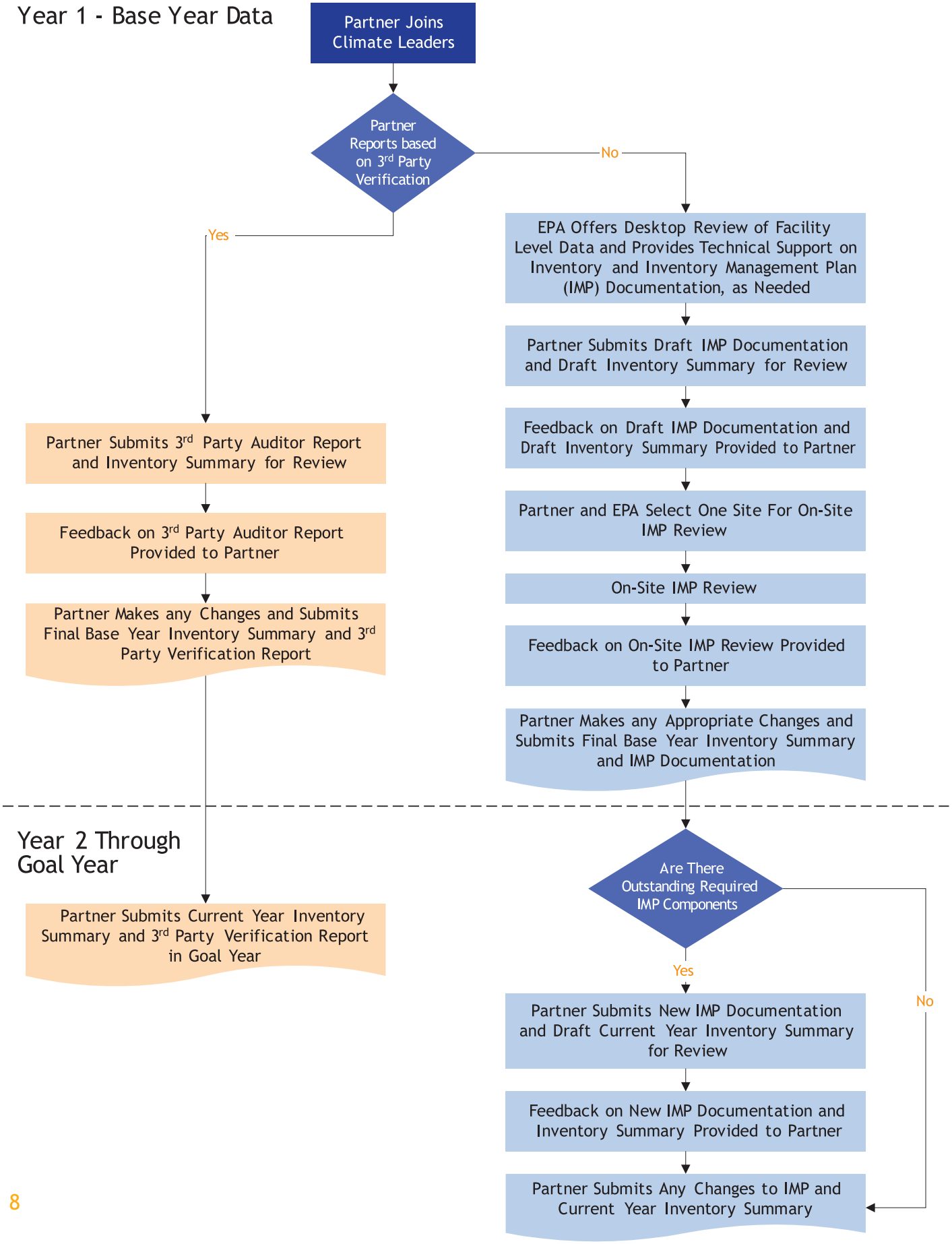
Corporate Inventory - U.S.	Base Year	Year 2	Year 3	Year
Year		--	--	--
EMISSIONS - Annual CO_2-eq. (metric tons)				
Direct Emissions				
Stationary Combustion Sources				
Mobile Combustion Sources				
Refrigeration / AC Equip. Use				
Process / Fugitive (specify source):				
Total Direct Emissions	0	0	0	0
Indirect Emissions				
Purchased and Used Electricity				
Purchased and Used Steam				
Purchased and Used Hot Water				
Purchased and Used Chilled Water				
Total Indirect Emissions	0	0	0	0
Optional Emissions (specify source):				
Total Optional Emissions	0	0	0	0
Direct + Indirect + Optional Emissions				
Total U.S. Emissions	**0**	**0**	**0**	**0**

REQUIRED SUPPLEMENTAL INFORMATION				
Biomass CO_2 Emissions - (metric tons/yr.)				
Total Stationary - Biomass CO_2				

Review Process

EPA provides a desktop review of both the Partner's IMP and its corporate GHG inventory data. EPA also offers a desktop review of facility-level GHG data for interested Partners. Many Partners have found the facility-level data review to be helpful in improving the quality of their inventory. One site visit is also conducted to review facility-level implementation of the Partner's IMP.

The Reporting Requirements Flowchart below describes the full reporting process.



Setting a GHG Emissions Reduction Goal

EPA offers flexibility in goal-setting because every company has a unique set of GHG emissions sources and reduction opportunities. Once Partners have completed their base year GHG inventory, EPA works closely with Partners to set an individualized GHG reduction goal. This goal must be:

- Corporate-wide (including at least all U.S. operations)
- Based on the most recent base year for which data are available
- Achieved over 5 to 10 years
- Expressed as an absolute GHG reduction or as a decrease in GHG intensity
- Aggressive compared to the projected GHG performance for the Partner's sector

Goal Evaluation Considerations

Partners represent a diverse group of companies, including energy producers, manufacturers, and service-oriented businesses. The standard for an aggressive goal might vary for different sectors and for different companies depending on a variety of factors:

- *Sector Issues*: Historically, GHG intensity tends to decrease over time in most sectors as equipment is replaced with newer, more efficient technology. This trend can be rapid in sectors where capital stock turns over quickly, and much slower in traditional manufacturing sectors. The rate of intensity improvement can also be affected by the growth rate of the sector.
- *Company Issues*: Partners within the same sector can have different GHG emissions sources and a wide range of reduction opportunities. In addition, some Partners have undertaken GHG reduction activities prior to joining Climate Leaders. These actions are taken into consideration when evaluating a Partner's proposed goal.

Goal Evaluation Methodology

EPA individually evaluates each proposed GHG reduction goal through the following process:

1) *Evaluation Against Benchmark*. The goal is evaluated against a projected benchmark GHG emissions improvement rate for each Partner's sector. In cases where a Partner operates in multiple sectors, a weighted average is used. The benchmark is a combination of projected average energy intensity improvement and any projected process-related emissions intensity changes. EPA expects every goal to be markedly better than the projected benchmark performance for the Partner's sector.
2) *Analysis of Current Performance*. EPA also considers a Partner's current emissions intensity when evaluating its GHG reduction goal. By comparing the Partner's current performance to its sector, EPA recognizes that many companies have already made signifi-

"GM has demonstrated that voluntary programs work, and they make good business sense. Our partnership with EPA's Climate Leaders program is an excellent example of how government and industry together can encourage innovation and strong, forwardthinking action."

—Elizabeth Lowery
Vice President
Environment and
Energy Policy
General Motors

cant reductions in their GHG emissions or GHG intensity. Companies that are currently very efficient for their sector will not be expected to commit to a reduction goal that is as aggressive as companies that are less efficient than their sector average.

Defining Projected Sector Benchmarks for GHG Emissions Performance

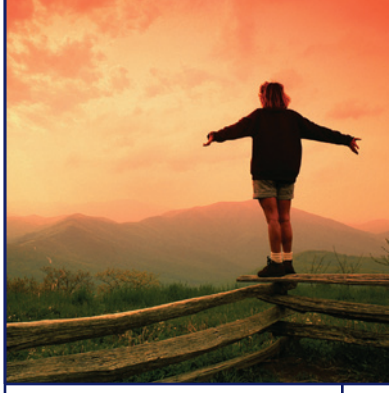
EPA currently uses the following models to develop an appropriate benchmark:

- For commercial and industrial companies, EPA uses both the U.S. Department of Energy's National Energy Modeling System (NEMS) and the Bureau of Labor Statistics' (BLS) forecast input/output tables for the U.S. economy to project benchmark energy intensity improvement by sector.
- To project GHG emissions from electric generators, EPA uses the Integrated Planning Model (IPM) developed by ICF Resources Inc.

In cases where emissions from industrial processes are a significant source of a Partner's inventory (such as cement or semiconductor manufacturing), EPA performs additional analyses based on sector-specific sources of process-related emissions data and projections. These data are then combined with the projected energy intensity improvement to develop a benchmark GHG emissions improvement rate for the Partner's sector.

Goal Achievement and Inventory Management: General Motors

After surpassing their first Climate Leaders goal and achieving GHG emissions reductions of 23 percent from 2000 to 2005, GM is working closely with EPA to set an aggressive second goal. Strategies to meet the next goal include leveraging two integral components to the Climate Leaders Inventory Management Plan: the company's energy and GHG management systems, and its Web-based energy data collection system. GM will further reduce its GHG footprint by growing its renewable energy portfolio with the nation's largest corporate solar photovoltaic installation, and continuing as a top corporate user of landfill gas.



Choosing a Key Performance Indicator for Normalized Goals

EPA allows goals to be expressed as an absolute GHG emissions reduction or as a decrease in GHG intensity. Absolute GHG reduction goals compare total GHG emissions in the goal year to those in a base year. GHG intensity goals allow a company to account for increases or decreases in production over time. The ratio of GHG emissions over an appropriate normalizing factor becomes the Partner's key performance indicator to measure GHG intensity. Normalizing factors are typically measured in physical units (e.g., tons of steel) or economic units (e.g., value of shipments). Due to the large variability in economic metrics, Climate Leaders generally prefers metrics based on physical values, which track year-to-year changes in emissions intensity more accurately. For companies that produce a wide diversity of products, however, using an economic metric might be more appropriate. EPA offers technical assistance to help Partners choose a suitable key performance indicator.

Reporting and Goal Tracking

Climate Leaders Partners report annual GHG inventory data to EPA to document progress towards their reduction goal. Partners with a worldwide goal report domestic and international emissions separately as well as reporting a worldwide total. This system allows EPA to ensure that Partners are demonstrating leadership through achieving a portion of their GHG reductions in the United States. Once Partners meet their initial Climate Leaders goal, EPA will work with them to set a new reduction goal.

"NREL believes in the balanced pursuit of economic viability, environmental stewardship, and public responsibility, so Climate Leaders serves as a good opportunity for us to highlight and expand on what we've already done."

—Dan Bilello
Manager
Environmental and International Group
National Renewable Energy Laboratory

Goal Achievement and Green Power: National Renewable Energy Laboratory

The laboratory has met its GHG emissions reduction goal primarily through the use of multiple onsite renewable energy projects, including several photovoltaics installations, and the use of wind power to offset electric load at its National Wind Technology Center. In fiscal year 2005, NREL purchased renewable energy certificates (RECs) that offset 100 percent of its annual electric use in Department of Energy-owned buildings. Several solar thermal projects include solar hot water systems, trombe walls, and ventilation air preheat systems. The laboratory's belief in making a positive local impact on the environment led NREL to make green power purchases in Colorado.